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ABSTRACT

The social history of 2,200 Army basic trainees was examined to determine the importance of pre-selected social factors and perceived problem areas of basic trainees in predicting their completion of basic combat training. Data regarding forty-six variables collected via the Fort Knox Community Mental Health Activity (CMHA) Social History form were analyzed for four groups of trainees: (1) the control group, who completed their training and were never referred to the CMHA staff for evaluation; (2) the counseling-adjust group, who were referred to the CMHA staff for evaluation, received counseling, and completed training; (3) the fail-to-adjust group, who were evaluated by the CMHA staff as experiencing difficulties not amenable to treatment and eventually were discharged; and (4) the recommend-for-discharge group, who were evaluated by the CMHA staff and recommended for discharge. It was concluded that (1) pre-selected social factors and perceived problem areas are influences on whether or not an individual completes basic training; (2) those individuals who perceive themselves as not having problems, as measured by the CMHA Social History, have a greater probability of completing basic combat training than those who perceive themselves as having problems; and (3) age and educational level are not predictors of successful completion of basic combat training. (EM)

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SOCIAL FACTORS AND PERCEIVED PROBLEMS AS PREDICTORS OF SUCCESS IN BASIC COMBAT TRAINING

A Thesis

Presented to

the Faculty of the Department of Educational Leadership

Western Kentucky University

Bowling Green, Kentucky

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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November 1977

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SOCIAL FACTORS AND PERCEIVED PROBLEMS AS PREDICTORS
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CHAPTER I

INTRODUCTION

Man, in his attempt to explain the diverse patterns of human behavior, has generated a number of theories. One of these theories, Psychoanalytical Theory, explains human behavior as a product of the unconscious mental processes within the individual. Another theory, Behaviorism, replaces the mental concepts of sensation and emotion with the concepts of stimulus, response, learning, and habit.

Among the fields of the Behavioral Sciences, practitioners are aware of the fact that it may be necessary to draw upon more than one theory of human behavior to explain an individual's behavior. This, in turn, poses a major problem to the practitioner. How much weight should he apply to the various categories of data to which he has access before assessing an individual's potential for adjustment to a specific situation? This study investigates the relative importance of two sources of data, social factors and perceived problems, and their impact on an individual's successful completion of basic combat training.

Background: Need and Significance

Since 14 June 1775, when John Adams of Massachusetts addressed the Continental Congress in Philadelphia and proposed

"a grand American Army, owing allegiance to no individual colony, but dedicated to protecting all,"[1] the United States of America has had the responsibility of maintaining a ready Army second to none. Beginning with the early days of the Army and continuing to the present, literally millions of men and women have served their country as members of the United States Army.

The termination of the draft in 1973 meant that individuals were no longer required to serve their country as part of the Armed Forces. Since that time, the United States has since relied upon volunteers to maintain a superior military force. Presently, the Army receives a sufficient number of recruits who have been assessed to possess the minimal physical, emotional, and mental abilities required for the successful completion of basic combat training. However, in spite of this screening and evaluating procedure, approximately one out of every ten recruits fails to complete basic combat training.[2]

In light of these statements, one can readily see the implications for national security should there be either a reduction in volunteers or an increase in the number of trainees who fail to complete basic combat training. Additionally, since 1973, the cost of training a basic recruit has steadily increased. According to the latest figures, it costs

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[1]Howard LaFay, "The Man Behind the Myths--George Washington," National Geographic Magazine, July 1976, p. 90-111.

[2]This figure is an estimate given by the administration at Trainee Separations, Fort Knox, Kentucky, the agency responsible for trainee discharges.

between $1,500 and $2,400 to recruit an individual[3] and another $2,382 in expenses through the completion of basic combat training.[4] This concern for the Army, the basic trainee, and economic factors are among the purposes of this investigation.

Problem Statement

The purpose of this investigation was to examine the relative importance of pre-selected social factors and perceived problem areas of basic trainees in relation to the completion of basic combat training (BCT) at Fort Knox, Kentucky.

Research Questions

The investigation was designed to provide answers for the following questions:

1. Can social factors and perceived problems be utilized as predictors in identifying those basic trainees who will complete basic combat training

2. Can social factors and perceived problems be utilized as predictors in identifying those basic trainees

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[3]The United States Army Recruiting Command 1976 estimates.

[4]This figure represents the cost of training a recruit at Fort Knox for the calendar year 1976. The calendar year 1977 figures have not been compiled as yet. This figure does not include Army-issued uniforms. (Basic training cost as included in this study is for a six-week period.)

who will need supportive counseling provided by the Fort Knox Community Mental Health Activity (CMHA) in order to complete basic combat training

3. Can social factors and perceived problems be utilized as predictors in identifying those basic combat trainees who will be evaluated and recommended by the Fort Knox CMHA for discharge

4. Can social factors and perceived problems be utilized as predictors in identifying those basic combat trainees who will fail to perform the required tasks and will be separated from the service by their commanders

Definitions of Terms and Phrases

The definitions of terms used in the study are terms used primarily in the military. In order to facilitate a greater understanding of the project, some of the terms and phrases are defined as follows:

1. Community Mental Health Activity - Military agency at Fort Knox responsible for out-patient psychiatric care

2. Social History - Questionnaire developed by the staff of CMHA to assist the counselor in facilitating a greater understanding of the trainee and to aid in assessing the general functioning of the individual

3. Basic Trainee - An individual who has had no previous military experience prior to his assignment at Fort Knox

4. Basic Combat Training - The initial six weeks of military training at Fort Knox, Kentucky

5. General Trainee Population - Trainees who completed basic combat training and were not seen at CMHA

6. Graduation - The successful completion of six weeks of basic combat training

7. Separation - Trainees who were separated from the service via the following routes: medical or administrative discharge

8. Fail to Adjust - Trainees who were discharged from the Army for other than medical or hardship conditions

9. Recommend for Discharge - Trainees who are evaulated by the staff of CMHA and found to be exhibiting signs of social and emotional maladjustment, and who are perceived as having a poor prognosis for an adequate adjustment to the military at the time of evaluation

10. Receive Counseling - Trainees who are experiencing difficulties, but with counseling successfully adjust to the military as evident by the successful completion of basic training

11. Reception Station - The initial housing area for the basic trainees. Once the trainee arrives at Fort Knox, he is billeted at the Reception Station for two or three days until he has completed in-processing

12. In-Processing - The procedure that constitutes the basic trainee receiving his physical examination, uniforms, unit assignment, and so forth

13. Unit Assignment - The specific unit to which the basic trainee will be assigned

14. Military Occupation Specialty (MOS) - The specific job or duty that a soldier is trained and assigned to do. Examples would include truck driver, cook and social work technician

Limitations of the Study

The sample for this study consisted of a selected group of 2,200 male basic trainees, all of whom underwent basic combat training at Fort Knox, Kentucky, from 1 June 1976, to 1 June 1977. Limitations of this study were the following:

1. The basic combat trainees were not controlled for age, race, educational level, economic status, or geographical home of record prior to the sampling procedure

2. A great proportion of basic combat trainees utilized in this study had enlisted for an Armor specialty

3. Individuals who were believed to have some contaminating effect on the study were dropped. Examples of these individuals included trainees who were discharged for medical reasons, or those who had previous military experience

4. The questionnaires were not issued uniformly with regard to date, place, and time to all the trainees involved in the study

5. The instrument used in this study has not been formally tested for validity and reliability measures, and

was limited to use by the CMHA at Fort Knox, Kentucky

6. At the time of this investigation, no basic combat trainees included in this study had enlisted in the Army under the threat of combat or combat conditions. No attempt was made during this study to determine if the threat of combat or combat conditions would influence the population samples or study outcomes

The United States, in times of war, has never depended solely upon volunteers for defense. Therefore, at this time no empirical data exist to indicate whether or not the sample studied here would differ in any respect.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

The literature related to the successful completion of military service obligations is both extensive and non-conclusive. However, this is not due to a lack of research efforts. Since World War I and continuing to the present, psychiatrists, psychologists, counselors, and others have all attempted to predict which individuals would be unable to complete their service obligations.

What has prompted the military to continue to conduct research in this area? The answer is not cost alone, even though this is a staggering figure. Nolan, Engle and Engle[5] report that in both world wars, statistics have shown that psychiatric disorders totaled more than one-half of all disabilities and were the most important causes of manpower shortages.

Hausman and Rioch[6] report that during certain periods of war, one-third of evacuated casualties were psychiatric

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[5]D. C. Nolan, Lewis and Bernice Engle, Wartime Psychiatry, A Compendium of the International Literature, (New York: Oxford University Press, 1954), pp. 599-600.

[6]W. Hausman and D. M. Rioch, "Military Psychiatry," Arch. Gen. Psychiatry, no. 16 (1967), pp. 727-739.

patients. Based on the Korean and Vietnam experiences, however, the impact of psychiatric disability was not nearly as great. Tiffany[7] stated, "although emotionally-based symptoms still account for a considerable number of lost man-hours, the number of psychiatric casualties has fallen dramatically, for reasons that are not totally clear at this time."

Psychiatrists as Predictors

The utilization of the psychiatrist is predicting military success[8] was a normal development with the establishment of the Department of Neuro-psychiatry.[9] In 1951, a study was initiated by Glass and others[10] to determine the ability of psychiatrists to predict the usefulness of future military trainees. In that study, a group of 505 randomly selected basic trainees was evaluated by military psychiatrists at six Army training centers. The evaluation included the following:

1. Background on the subject with respect to early environment and pre-service adjustment

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[7]W. J. Tiffany, Jr., "Mental Health of Army Troops in Vietnam," American Journal of Psychiatry 123 (1967): 1585-1586.

[8]Military success in the review of the literature consists of the completion of a service obligation (2 years), unless otherwise noted.

[9]D. C. Nolan, Lewis and Bernice Engle, Wartime Psychiatry, A Compendium of the International Literature, (New York: Oxford University Press, 1954), p. 180.

[10]Albert J. Glass, Francis J. Ryan, Ardie Lubin, C. V. Ramana, Anthony C. Tucker, "Psychiatric Prediction and Military Effectiveness, Part III--Factors Influencing

2. Clinical impressions as to the degree of psychopathology and intellectual levels

3. The psychiatrist's estimation of the subject's future military effectiveness when assigned either to a combat or non-combat area

After the subjects had completed two years of Army service, their duty performance was rated from personnel and medical records then compared with the psychiatrists' predictions that were made during induction. The results indicated that "the psychiatrists predicted satisfactory performance for only seventy-six percent of the sample, whereas eighty-nine percent rendered adequate service."[11]

Environmental Factors as Predictors

In addition to the utilization of psychiatrists, other studies have been conducted to examine the possibility of environmental and social factors as indicators of military success. One of the most unusual studies in terms of recommendations was conducted by Illing[12] in 1942. While no information is known in terms of sample size, procedures, or methodology, Illing studied the backgrounds of military officers and included reports from the Hitlerjungend, Arbeitsdienst compulsary labor service, and the Nazi training

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Psychiatrists," U.S. Armed Forces Medical Journal (March 1957): 346-357.

[11]Ibid., p. 347.

[12]E. Illing, "Psychiatric Indications for Selection of Officers," Deut. Militararzt, 7:353, June 1942.

school for leaders. He concluded that "military families should be encouraged to have great numbers of children in order to perpetuate the qualities of good officer material."[13] In 1942, Simon and Hagan[14] studied 400 psychiatric casualties picked at random. All casualties were admitted to St. Elizabeth's Hospital, Baltimore, Maryland, during the period of 1 January 1941, to 1 January 1942. A composite breakdown included 200 Army, 150 Navy, and 50 Marine Corp men. Most of these men were voluntary enlistments and a small number (approximately 30) were inducted through selective service. Blacks were excluded from the study, and seven specific and objective factors were examined. They included previous mental illness, broken homes, psychosis in the family, education occupational adjustment, anti-social behavior, and alcoholism. Similar factors were studied in 788 men who received psychiatric examinations at the Selective Service examining stations. These factors were compared in the groups accepted and rejected. Included among the author's findings were:

1. Of the military personnel who became psychotic, 72.2 percent had five or more factors present

2. The use of a written questionnaire in obtaining even simple data as employed in the investigation, is of

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[13] Ibid.

[14] Alexander Simon and Margaret Hagan, "Social Data in Psychiatric Casualties in the Armed Services," American Journal of Psychiatry 99 (November 1942): 348-353.

little value.[15]

Social Backgrounds as Predictors

The relationship between social factors and military success was examined by Egbert in 1953.[16] Egbert administered a 40-hour battery of tests to 310 combat infantrymen whom members of the Human Research Unit No. 2 had selected as good or poor combat performers.

> This selection was based on interviews with soldiers who were chosen from a variety of combat situations and who described specific instances of their own and others' recent combat behavior. A soldier was selected for testing on the basis of the nature and number of firsthand observations reported about him.[17]

The battery included personality questionnaires, interest test, background and life history inventories, intelligence and aptitude test, military information test, attitude test, projective test, and other instruments.[18] After reviewing all data, the author concluded:

> "1. Men who are low in intelligence tend to make poor fighters
> "2. Fighters were more socially mature and were generally perceived as having greater emotional stability than non-fighters
> "3. Fighters tended to describe their homelife as harmonious more often than did non-fighters"[19]

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[15]Ibid., p. 353.

[16]Robert L. Egbert, "Fighter I: An Analysis of Combat Fighters and Non-Combat Fighters," Technical Report 44, (Human Resources Office, Washington, D.C.: The George Washington University Press), December 1957, pp. 3-5.

[17]Ibid., p. 3.

[18]Ibid., p. 4.

[19]Ibid., p. 5.

In a published doctoral dissertation by Ryan in 1958,[20] the social backgrounds of 2,216 Army inductees were compared with their Army performances, and the following conclusions were drawn:

> "1. Expressed attitudes of individuals toward military life were not at all related to performance in the military setting
> "2. Physical and emotional complaints at induction, as measured on the Cornell Medical Index, were statistically related to overall Army complaints, but this relationship had little if any practical significance
> "3. Years of formal schooling and adjustment to the civilian community were all significantly related to adjustment in the Army
> "4. Education alone was the best predictor for most subjects, but in the few cases where a civil criminal record was determined, the chances of Army failure were relatively high"[21]

Inventories as Predictors

The review of literature thus far has centered around the use of psychiatrists, environments, and social factors as predictors of military success. However, in view of the fact that the most recent research has focused on the development of an objectively scored questionnaire (one capable of identifying the successful individual from the non-successful one), a review of this literature seems most appropriate.

In 1954, Danielson and Clark[22] designed the Fort Ord

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[20] Francis J. Ryan, The Relation of Performance to Social Background Factors Among Army Inductees, (Washington, D.C.: The Catholic University of America Press, 1958).

[21] Ibid., p. 82.

[22] J. R. Danielson and J. H. Clark, "A Personality Inventory for Induction Screening," Journal of Clinical Psychology 10 (1954): 137-143.

Inventory to identify those individuals who "manifest or are likely to manifest psychiatric disability of sufficient severity to preclude Army service."[23] The instrument consisted of one hundred items divided into five scales and four stop items. After administering the inventory to more than 15,000 recruits, the authors concluded, (based on their validating data), that "the instrument was effective as a screening adjunct."[24] However, since 1954, no additional research has been published on the instrument. The use of inventories has not been limited to Army research. In 1962, Plag[25] administered a 195-item questionnaire to 20,000 Navy recruits entering training.

> Through an analysis of a sample of 6,195 recruits, seven psychological areas were delineated as containing the greatest number of significant variables. Highly valid predictors were itemized for use as possible standards at recruiting stations for the rejection of applicants with minimal adjustment and performance potential.[26]

Jensen,[27] in 1952, administered an 82-item questionnaire to 9,194 male airmen undergoing basic training. The questionnaire contained items dealing with personal adjustments

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[23]Ibid., p. 143.

[24]Ibid.

[25]J. A. Plag, "Pre-Enlistment Variables Related to the Performance and Adjustment of Navy Recruits," Journal of Clinical Psychology 19 (1962): 168-171.

[26]Ibid., p. 171.

[27]M. B. Jensen, "Adjustive and Non-Adjustive Reactions to Basic Training in the Air Force," Journal of Social Psychology 55 (1961): 33-41.

and attitudes.

> Item analysis of an 82-item questionnaire was based on the responses of 4,980 successful and 315 non-successful airmen. Effectiveness of prediction of success made by psychology personnel in medical processing at the onset of basic training was checked against military records and end of training ratings by tactical instructors.[28]

The author concluded among his seven generalizations that, "though incidence of failure in basic training is less than five percent, psychological personnel predict success and non-success with a fairly high, though not entirely satisfactory, degree of accuracy."[29]

La Char, Sparks, Larsen, and Bisbell,[30] in 1974, reported on an investigation which included 14,804 consecutive male recruits who obtained their initial military training at Lackland Air Force Base, Texas, during the summer of 1972. The design of the study included reviewing all training records, records of the Mental Hygiene Clinic, and records related to medical and administrative separation for each subject. All subjects were placed into eight mutually exclusive criterion groups including normals, severe adjustment problems, moderate adjustment problems, mild adjustment problems, slow learners, drug abuse, medical discharge, and physical conditioning.

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[28]Ibid., p. 40.

[29]Ibid.

[30]D. LaChar, J. C. Sparks, R. M. Larsen, "Psychometric Prediction of Adaption for USAF Basic Trainees," Journal of Community Psychology 2 (1974): 268-277.

After reviewing the data, an attempt was made to correlate the results on the Psychological Screening Inventory and the History, Opinion, and Interest Form, with the severe adjustment problem and the drug abuse discharge groups. The results included a twelve percent subsample identification with a fifty percent split between "predictive hits and false positives."[31]

Guinn, Johnson, and Kantor,[32] in an Air Force Resources Laboratory Report in May of 1975, further evaluated La Char's work and concluded that "the History, Opinion, and Interest Scales (HOI) appear to indicate that the self-report data contained in the HOI has some practical usefulness as a rough preliminary screening device. They recommended that use of this screening device be limited to preliminary screening only, and that additional psychometric and/or psychiatric assessment be mandatory before any personnel action is recommended."[33]

Tests of Personality as Predictors

The use of personality tests as predictors of military success has included studies utilizing the Minnesota Multiphasic Personality Inventory (MMPI), and the Taylor-Johnson Temperament Analysis (T-JTA). The Minnesota Multiphasic

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[31]Ibid., p. 276.

[32]Wallace Bloom, AFMET: The Air Force Medical Evaluation Test, Wilford Hall USAF Medical Center, Lackland AFB, Texas. Mimeographed report pp. 1-6.

[33]Ibid., p. 1.

Personality Inventory is designed to "provide an objective assessment of some of the major personality characteristics that affect personal and social adjustment."[34] The Taylor-Johnson Temperament Analysis (T-JTA) is designed to measure nine basic personality traits and their opposites.[35]

In 1948, a study by Clark[36] explored the possibility of utilizing the MMPI as an instrument to differentiate AWOL recidivists from non-recidivists. The MMPI was given to 100 soldiers selected at random at a center for processing and rehabilitating soldiers who were AWOL. Of the 100 men, 55 had been AWOL more than once. In order to determine whether any scales of the MMPI might be associated with recidivism, tetrachoric r's were calculated. Insignificant relationships between MMPI subscale scores and recidivism were indicated. Inspectional analysis revealed little differential discrimination in terms of the number of deviate scores per AWOL trainee. However, analysis of the items provided a tentative recidivist scale of twenty-four items.[37]

In 1957, a study by Briskin and Stennis[38] attempted

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[34]S. R. Hathaway and J. C. McKinley, Minnesota Multiphasic Personality Inventory, (Manual), New York: Psychological Corporation, 1967: p.7.

[35]Robert M. Taylor, Lucile P. Morrison, W. Lee Morrison, and Richard C. Romojer, Taylor-Johnson Temperament Analysis, (Manual), Los Angeles: Psychological Publications, Inc., 1966: p. 1.

[36]Jerry H. Clark, "Application of the MMPI in Differentiating AWOL Recidivists from Non-Recidivists," Journal of Psychology 26, July 1948:

[37]Ibid., p. 234.

[38]Ibid.

to increase the predictability of the Minnesota Multiphasic Personality Inventory (MMPI) by revalidating it to conform more readily to the military population. This was accomplished by determining means and standard deviation for each of the sub-scales of eighty MMPI profiles selected at random for their files and recalculating T scores for the population being studied. Twenty-four MMPI profiles were randomly selected from their files and diagnostic predictions were made from test interpretations by two judges. The authors reported that the two judges using the revalidated data were able to predict with significant accuracy the final psychiatric diagnosis. When the same judges attempted to predict using the standard MMPI profiles, their efforts were on a purely chance basis.[39]

In concluding, the authors believed that the "predictive ability of the MMPI can be improved if the test is specifically revalidated for the sub-populations with which it is being used."[40]

In a 1971 study, Berbiglia[41] utilized the Taylor-Johnson Temperament Analysis (T-JTA) in attempting to predict the early identification of potential AWOLS. The study consisted of administering the T-JTA to every man (approximately 800) who in-processed to his artillery battalion immediately upon his arrival. Those individuals whose profile matched the AWOL

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[39]Ibid., p. 543.

[40]Ibid.

[41]James C. Berbiglia, "The AWOL Syndrome Supplement 3," Taylor-Johnson Temperament Analysis Manual (Los Angeles: Psychological Publications, 1971, revised 1973).

pattern syndrome were provided counseling. Utilizing the instruments in this manner, the AWOL rate was reduced to zero for four months.[42]

Subsequent research employing the Taylor-Johnson Temperament Analysis (T-JTA) was conducted in 1973 by Bell, Bolin, Houston, and Kristiansen.[43] This research attempted to compare and evaluate the AWOL syndrome as identified by the T-JTA, with a simple twenty-five-item questionnaire and a control group. A total of 5,333 basic trainees participated in the experiment. Among men identified as controls for preventive interviews with company commanders, discipline rates were unchanged.

> Among the controls not identified, discipline was moderately predicted by a background questionnaire, but discipline was not consistently predicted by the 'AWOL Syndrome' derived from the T-JTA. Among men identified for interview as discipline risks by background or temperament, discipline was more highly predictable than among controls. These results lead the authors to conclude that identifying men as discipline risks by either temperament or background was counterproductive.[44]

Further investigation by Bell, Kristiansen, and Houston[45] in 1974 utilized 8,250 men from fifty training

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[42]Ibid., p. 4.

[43]D. B. Bell, S. F. Bolin, T. J. Houston, and D. M. Kristiansen, Predictions and Self-Fulfilling Prophecies of Army Discipline, presented at the 1973 Annual Convention of the American Psychological Association.

[44]Ibid., p. 4.

[45]D. B. Bell, D. M. Kristiansen, and T. J. Houston, Predictions and Self-Fulfilling Prophecies of Army Discipline: A Follow-Up Evaluation, presented at the 1974 Annual Convention of the American Psychological Association.

companies, and employed the Background and Opinion Questionnaire-72 (BOQ-72).

> Prior to the beginning of BCT, all participants completed the BOQ-72 and were randomly divided into two equal samples: 'BOQ' and 'Control'. Test scores in the BOQ sample yielded a high-risk BOQ group referred for interview, and a reduced-risk BOQ group which was not. Random assignment was used in the control sample. The 10 percent referred for interview comprised the control-interview group; the remaining 90 percent was called the control-noninterview group.[46]

Following the completion of basic combat training, the investigation examined trainee records with respect to disciplinary infractions and concluded the following:

1. The BOQ-72's moderate level of predictive validity has been cross-validated and shows promise for future research

2. The current BOQ identification-referral system is counter-productive[47]

Summary

This review of literature has surveyed various studies utilizing psychiatrists' predictions, social and environmental factors, and psychological instruments as predictors of military success. To this date, all research has proven inconclusive. However, in October of 1972, the Social Processes Technical Area was established as part of the Army Research Institute for the Behavioral and Social Sciences (ARI). This agency is concerned with the

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[46]Ibid., p. 2.

[47]Ibid., p. 8

> problems of social dynamics and interactions to help soldiers better adjust to the Modern Volunteer Army; to provide field commanders with techniques to increase unit competence; and to provide information to headquarters' commanders on which they can most appropriately base their decisions.[48]

Thus, the need for additional research in this area has been officially identified and substantiated.

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[48]D. B. Bell and R. F. Holz, Summary of (ARI) Army Research Institute Research on Military Delinquency, quotation forword by J. E. Uhlaner, U.S. Army Research Institute for the Behavioral Sciences, Arlington, Virginia, 1975, approved for public release.

CHAPTER III

PROCEDURES AND METHODOLOGY

The purpose of this investigation was to examine the relative importance of pre-selected social factors and perceived problem areas of basic trainees in relation to the completion of basic combat training at Fort Knox, Kentucky. The primary investigation was conducted by the writer with assistance from the staff at the CMHA, and the staff at Headquarters, United States Army Reception Station, Fort Knox, Kentucky.

Definition of the Sample

The sample consisted of 2,200 basic trainees who received basic combat training at Fort Knox, Kentucky, from 1 June 1976, to 1 June 1977. The number of trainees receiving basic combat training at Fort Knox ranges between 15,000 and 25,000 annually.[49]

Group One, the control group, consisted of 1,000 basic combat trainees who completed their training and were not referred to the staff at the Fort Knox CMHA for evaluation. The original sample consisted of 1,123 of which 123 were dropped because of contamination (i.e., discharged or seen at CMHA).

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[49]Estimate is based on U.S. Army Fort Knox Reception Station figures.

Group Two, the counseling adjust group, consisted of 400 basic combat trainees who were referred to the CMHA for evaluation by members of their cadre. These individuals received counseling and were able to complete their training.

Group Three, the fail to adjust group, consisted of 400 basic combat trainees who were referred to the CMHA for evaluation by members of their cadre. These individuals were evaluated by CMHA staff members as experiencing difficulties that were either not amenable to treatment, or beyond the responsibility of the CMHA. During the course of their training, these individuals were separated by their commanders for sub-standard performances.

Group Four, the recommend for discharge group, consisted of 400 basic combat trainees who were experiencing difficulties and were referred to the CMHA for evaluation by members of their cadre. These individuals were evaluated as manifesting signs of social and emotional maladjustment to the extent that they were recommended for separation from the military by the staff of CMHA. Subsequently, these trainees were separated from the service.

Instrumentation

The Fort Knox CMHA Social History form (See Appendix A), was the instrument used for predicting group membership. The Social History was developed by the CMHA staff in 1972, and revised in 1975, to elicit information from individuals prior to the initial interview. This information is utilized by the

counselor in facilitating a greater understanding of the individual and as an aid in assessing his general level of functioning.

For the purpose of this investigation, certain sections of the Social History were not utilized. The unused sections included Part I--identifying data, Part III--Military History, and Part V--Family Data, also spaces for referral, present problem, and phone number were not utilized.

In addition to the instrument, a Privacy Act Statement (See Appendix B) was required of each trainee in the investigation. The Privacy Act Statement was necessary because personal information was used.

The areas of the Social History utilized in this investigation included:

Part I--Identifying Data

1. Age

Part II--Civilian School History

2. Fighting
3. Truancy
4. Disciplinary action
5. Lack of interest
6. Poor grades
7. Teachers
8. Education level

Part IV--Medical History

9. Have used alcohol
10. Have used drugs

11. Type of drug--prescribed medication
12. Type of drug--speed
13. Type of drug--hallucinogen
14. Have had psychiatric treatment
15. Have had mental problems, but no treatment
16. Have been nervous since childhood

Part IV--Personal Data

17. Problem sleeping
18. Cannot concentrate
19. Cry often
20. Disgusted with self
21. Bed wetter
22. At times confused
23. Hear things or voices
24. Plan to go AWOL (Absent Without Leave)
25. Very nervous
26. Want to hurt others
27. Problem eating
28. Have poor attitude
29. Get in fights
30. Don't like people
31. Sex problems
32. See things
33. Marital problems
34. Fearful of tanks
35. Have blackout spells
36. Miss family

37. Problems with mother
38. Problems with father
39. Problems with brother
40. Problems with sister
41. Now using drugs
42. Drink heavily
43. Girlfriend problems
44. Fearful of weapons
45. Want to hurt self
46. Other

A total of forty-six independent variables were studied as they related to success in the completion of Basic Combat Training.

Procedures for Obtaining Data

Data from the control group, Group One, were obtained by first securing permission to test the basic combat trainees from the Commander, United States Army Reception Station, Fort Knox, Kentucky. After discussing the project with the Commander, a decision was made to obtain data from the next 1,200 basic combat trainees who cycled through the Reception Station during the months of February and March 1977.

In order to insure standardization, data was secured from the trainees following the evening meal of their first day at the reception station. At this time, the trainees were assembled and briefed by a Senior Non-Commissioned Officer as follows:

Gentlemen, we have been asked by the Fort Knox Community Mental Health Activity to assist them in validating and improving their Social History Form. To this end, I want you to do the following:

Before you are two pieces of paper stapled together. The first sheet is a Privacy Act Statement. Please read the statement carefully. Are there any questions? Please sign your name on the lower left-hand side in the block that reads 'signature of patient or sponsor'. Use your payroll signature when you sign. In the next block print your social security number, and in the last block today's date. Are there any questions?

Now turn to the second sheet which consists of the Social History. Fill out all the spaces and boxes that apply to you. Where there is a red line or red X, do not, repeat do not, attempt to complete. There are two sides to this sheet. Be sure and fill out both sides front and back. Remember this will be used for research purposes. Are there any questions? If not, begin and work as quickly as possible.

Data for Groups Two, Three, and Four were obtained in the following manner. The investigator reviewed the charts of all basic combat trainees who were evaluated by CMHA Staff Members during the period of 1 June 1976, to 1 June 1977. During this review, the trainee records were placed in either Group Two, with counseling adjust, Group Three, fail to adjust, or Group Four, recommend for discharge. Those trainee records that did not meet the criterion for investigation were disregarded. To have equal group size, the investigator decided to use the group with the smallest number of trainee records as the size for all three groups. The recommend for discharge group consisting of four hundred trainee records was the smallest. Therefore, Groups Two and Three were reduced randomly to groups of four hundred.

Treatment of Data

Data collected in this investigation were processed

through the Kentucky Educational Computing Network, utilizing an IBM 370 computer located at the University of Kentucky, and serving Western Kentucky University via a remote batch entry terminal. The first method, a Multivariate Analysis, was employed on forty-four variables; and the second method employed was a Discriminate Analysis for the variables age and educational level.

Description of Statistical Technique

Multivariate Data Analysis is designed to aid the investigator in understanding how a dependent variable is related to a set of independent variables. The Multivariate Analysis Technique utilized in this study, (Multivariate Nominal Scale Analysis--MNA),[50] allows for analysis of data when:

1. The dependent variable is a set of mutually exclusive categories

2. The independent variables are measured at any level of measurement including nominal measurement

3. Any pattern or form of relationship exists between an independent variable and the dependent variable, or between any pair of independent variables

While the MNA was designed for use with nominal dependent variables, the procedure may also be applied to an ordinal or interval dependent variable as long as the number of categories is small.

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[50]Frank M. Andrews and Robert C. Messenger, Multivariate Nominal Scale Analysis. A Report on a New Analysis Technique and a Computer Program, (Ann Arbor, Michigan: The University of Michigan Press, 1973).

The MNA technique was applied to the data with the four category typology (control, counseling adjust, fail to adjust, and recommend for discharge group) as the dependent variable. The independent variables were those variables included in Parts IV and VI of the CMHA Social History. The relationship analyzed included:

1. The strength of the relationship between the forty-four independent variables taken together as a set, and the dependent variable

2. Prediction of group membership based on forty independent variables

The developers of the MNA computer program utilized in this study stated that up to fifty independent variables could be employed. However, the program could handle only forty variables simultaneously.[51] Thus, two concurrent runs were necessary. The first concurrent run consisted of forty variables, and the second run included the four variables. At the completion of these runs, a review of the bivariate thetas of forty-four variables was conducted. Ten variables were found to have bivariate thetas of 0.50 or greater.

A second MNA run containing only these variables was conducted. Findings from the first two analyses lead to a third MNA run, which utilized the ten variables with the highest bivariate thetas and eliminated the control group. A complete

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[51]Communications were made to the computer center at the University of Michigan to verify this deficiency.

listing of all the variables and their bivariate thetas is located in appendix C.

Discriminate Analysis

A Discriminate Analysis was employed in analyzing the variables age and educational level.

> Discriminate analysis begins with the desire to statistically distinguish between two or more groups of cases. These 'groups' are defined by the particular research situation.
>
> The mathematical objective of discriminate analysis is to weigh and linearly combine the discriminate variables in some fashion so that the groups are forced to be as statistically distinct as possible. In other words, we want to be able to "discriminate" between groups in the sense of being able to tell them apart.[52]

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[52]Bowman, Kenneth J. and Cahill, Mathew, ed., Statistical Package for the Social Sciences (New York: McGraw Hill Book Company, 1975, p. 435).

CHAPTER IV

FINDINGS

The purpose of this investigation was to examine the importance of social factors and perceived problem areas of basic trainees in relation to a specific performance criterion--the completion of six weeks of basic combat training at Fort Knox, Kentucky. The data utilized in this investigation were analyzed through the use of a multivariate analysis technique and discriminate analysis. The results of those analyses are contained in the following pages.

Preliminary Multivariate Nominal Scale Analysis

Because of the inability of the MNA program to accommodate forty-four variables simultaneously, it was necessary to program two preliminary MNA computations. The first of these included forty variables, and the second included four variables. After obtaining the results from these two programs, the forty variables with the highest bivariate thetas were included as variables for the first MNA. The variables dislike teachers, used alcohol, problems with sister, and others were not used utilized as independent variables for the investigation.

First Multivariate Nominal Scale Analysis

The first MNA was computed utilizing the forty variables with the highest bivariate thetas contained in the CMHA Social History form. Based on this analysis, the following predictions were made:

1. The control group was predicted correctly in 98.2 percent of the cases

2. The counseling adjust group was predicted correctly in 22 percent of the cases

3. The fail to adjust group was predicted correctly in 29 percent of the cases

4. The recommend for discharge group was predicted correctly in 48 percent of the cases, and

5. Overall, the percent of grouped cases correctly predicted was 62.59 percent.

The results contained in this first analysis clearly indicated that the variables utilized in this investigation are extremely accurate in predicting those trainees who will successfully complete BCT. Although the results of this analysis were encouraging, nevertheless, the question was raised, Could a smaller number of variables be employed with the same level of accurate prediction?

Second Multivariate Nominal Scale Analysis

In reviewing the bivariate thetas of the forty variables, it was noted that only ten variables had bivariate thetas of greater than 0.50. Theoretically, these variables should be able to predict group membership with nearly the same

accuracy as was found in the original analysis. As a result of this finding, a second MNA was programmed containing the following ten variables:

1. Nervous since childhood
2. Problem sleeping
3. Cannot concentrate
4. Cry often
5. Plan to go AWOL
6. Very nervous
7. Problem eating
8. Poor attitude
9. Fearful of weapons
10. Want to hurt self

Based on the analysis of this second MNA, the following predictions were made:

1. The control group was predicted correctly in 97.9 percent of the cases

2. The counseling adjust group was predicted correctly in 17.5 percent of the cases

3. The fail to adjust group was predicted correctly in 21.75 percent of the cases

4. The recommend for discharge group was predicted correctly in 51.5 percent of the cases, and

5. Overall, the percent of grouped cases correctly predicted was 61 percent.

The results of this analysis were extremely encouraging. Not only was the accuracy maintained, but more importantly,

it was sustained with ten variables rather than the original forty variables.

Third Multivariate Nominal Scale Analysis

The third MNA program analysis was conducted utilizing the ten variables with bivariate thetas greater than 0.50 to predict group membership. This analysis was conducted to determine if the elimination of the control group from the dependent variable would result in a greater amount of accuracy in the prediction of the three problem groups. Based on the analysis of this third MNA program, the following predictions were made:

1. The counseling adjust group was predicted correctly in 55.5 percent of the cases

2. The fail to adjust group was predicted correctly in 24 percent of the cases

3. The recommend for discharge group was predicted correctly in 54.5 percent of the cases, and

4. Overall, the percent of grouped cases correctly predicted was 45 percent

These results indicate improvement in the counseling adjust group. A comparison matrix of the three MNA computer analyses is listed in table 1 on the following page.

TABLE 1

COMPARISON MATRIX OF MNA COMPUTER ANALYSIS
OF FORT KNOX BASIC TRAINEES

MNA Computer Analysis Number One Utilizing
Forty-Four Variables

Group	MNA Correct Case Prediction
Control	98.10 percent
Counseling adjust	22.00 percent
Fail to adjust	29.00 percent
Recommend for discharge	48.00 percent

Total percent of cases correctly predicted: 63 percent

MNA Computer Analysis Number Two Utilizing
Ten Variables

Control	97.90 percent
Counseling adjust	17.50 percent
Fail to adjust	21.70 percent
Recommend for discharge	51.50 percent

Total percent of cases correctly predicted: 61 percent

MNA Computer Analysis Number Three Utilizing
Ten Variables
(Control Group Not Included)

Counseling adjust	55.50 percent
Fail to adjust	24.00 percent
Recommend for discharge	54.00 percent

Total percent of cases correctly predicted: 45 percent

Discriminate Analysis

A discriminate analysis technique was employed in the analyses of data for the variables age and educational level. This technique was utilized rather than the MNA technique because it is more appropriate in the analyses of continuous data. The variables age and educational level produced the following results:

1. The control group was predicted correctly in 52.8 percent of the cases

2. The counseling adjust group was predicted correctly in 14.5 percent of the cases

3. The fail to adjust group was predicted correctly in 11.5 percent of the cases

4. The recommend for discharge group was predicted correctly in 33.8 percent of the cases

5. Overall, the percent of grouped cases correctly predicted was 34.86 percent

To support the findings in discriminate analysis, ETA's were calculated to determine the relationship between group membership and the variables age and educational level. For the variable age, the ETA was 0.099, indicating an explained variance of only 0.01. For the variable educational level, an ETA of 0.14 was obtained, indicating an explained variance of 0.02. These findings indicate little meaningful relationship exists between group membership and age and educational level. A comparison table of discriminate analysis prediction results for age and educational level is included in table 2 following.

TABLE 2

COMPARISON MATRIX OF DISCRIMINATE ANALYSIS PREDICTION RESULTS FOR AGE AND EDUCATIONAL LEVEL OF FORT KNOX BASIC TRAINEES

Actual Group	Number of Cases	Predicted Group Membership
Control	1,000	52.80
Counseling adjust	400	45.50
Fail to adjust	400	11.50
Recommend for discharge	400	33.80

Percent of grouped cases correctly identified: 34.86

Discussion

From the results of this investigation, two findings merit consideration. First, it appears that certain problems may be influencing factors in the completion of basic combat training at Fort Knox, Kentucky. More specifically, ten problems were identified as significant predictors in the successful completion of basic combat training. These ten problems may be stress related. The impact of stress on the basic combat trainee is not well understood. It may be that individuals who fail to adjust to the military or exhibit signs of social or emotional maladjustment have reached their limits of stress and are in need of abatement. It follows that trainees may need to be identified as psychological high risks and placed in programs that differ from the traditional training regiment.

Secondly, although previous studies indicate that the variables age and educational level are the best predictors of

military success, the findings in this investigation indicate otherwise. A possible explanation may be that earlier studies were conducted during conscription. Additionally, changes in society and the initiation of the all volunteer force may be the answer. However, it must be emphasized that the answer to the difference in findings is beyond the scope of the data collected in this investigation.

CHAPTER V

SUMMARY

The purpose of this investigation was to examine the relative importance of pre-selected social factors and perceived problem areas of basic trainees in relation to the completion of six weeks of basic combat training at Fort Knox, Kentucky. The investigation was accomplished through the use of data contained in the CMHA Social History Form. The CMHA Social History Form included forty-six variables. Forty-four variables were analyzed utilizing multivariate data analysis technique, and the variables age and educational level were analyzed by means of a discriminate analysis.

The sample consisted of 2,200 basic trainees who received basic combat training at Fort Knox, Kentucky, from 1 June 1976, to 1 June 1977. Group One, the control group, consisted of 1,000 basic trainees who were sampled at the Reception Station prior to commencing their training. This group of trainees completed basic training and were never referred to the staff at the Fort Knox Community Mental Health Activity for evaluation. Group Two consisted of 400 basic trainees who were referred to the CMHA by their cadre, received counseling, and proceeded to complete training. Group Three consisted of 400 basic trainees who were referred to the

CMHA, and who failed to adjust to the military as evidenced by their being discharged. Group Four consisted of 400 basic trainees who were evaluated and recommended by the staff at CMHA for discharge. Subsequently, these individuals were discharged from the Army.

Conclusions

From the results of this investigation, a number of conclusions can be drawn:

1. Pre-selected social factors and perceived problem areas are influences on whether or not an individual completes basic combat training

2. Those individuals who perceive themselves as not having problems as measured by the CMHA Social History, have a greater probability of completing basic combat training than those trainees who perceive themselves as having problems

3. The variables age and educational level are not significant as predictors in the successful completion of basic combat training

Implications and Recommendations

The investigation gives promise that pre-selected social factors and perceived problems can be identified and utilized as a screening technique for identifying those individuals who will be successful in completing basic combat training. Additionally, a screening instrument employing only ten variables can be utilized to predict quite accurately successful completion of basic combat training, and to some

degree those who are successful with counseling.

Recommendations worthy of presenting to training commands include:

1. All trainees upon arrival to the Reception Station, Fort Knox, Kentucky, should be administered a questionnaire utilizing the ten items developed as a result of this investigation. Those trainees identified by the questionnaire as representing a high risk should be referred to CMHA for further evaluation

2. Further research should be conducted to identify additional variables that can discriminate between those individuals in the high risk group who will be able to complete training with counseling from those who will be separated from service despite counseling

3. This study needs to be replicated to determine the consistency of these findings

4. Additional research involving the stress levels of trainee during BCT should be initiated.

APPENDIX

APPENDIX C

RANK ORDER OF VARIABLE BY BIVARIATE THETAS

Rank	Variable	Bivariate Theta
1	Very nervous	0.5755
2	Problems sleeping	0.5582
3	Cannot concentrate	0.5573
4	Cry often	0.5545
5	Problem eating	0.5305
6	Plan to go AWOL	0.5236
7	Nervous since childhood	0.5223
8	Want to hurt self	0.5209
9	Poor attitude	0.5132
10	Fearful of weapons	0.5045
11	At times confused	0.4968
12	Fearful of tanks	0.4891
13	Have blackout spells	0.4877
14	Want to hurt others	0.4845
15	Don't like people	0.4795
16	See things	0.4764
17	Get in fights	0.4732
18	Disciplinary action	0.4705
19	Bed wetter	0.4686
20	Drug (speed)	0.4673
21	Sex problems	0.4673
22	Now using drugs	0.4641
23	Drink heavily	0.4627
24	Fighting in school	0.4618
25	Drug (hallucinogen)	0.4609
26	Problem with brother	0.4586
27	Prescribed medication	0.4586
28	Girl friend problems	0.4582
29	Truancy	0.4559
30	Lack of interest in school	0.4545
31	Miss my family	0.4545
32	Problem with father	0.4545
33	Disgusted with self	0.0697
34	Mental problems no treatment	0.0428
35	Hear things or voices	0.0407
36	Have had psychiatric treatment	0.0373
37	Poor grades	0.0212
38	Have used drugs	0.0169
39	Marital problems	0.0088
40	Problems with mother	0.0084

APPENDIX C--Concluded

Rank	Variable	Bivariate Theta
41	Dislike teachers	0.0073
42	Used alcohol	0.0041
43	Problems with sister	0.0027
44	Other	0.0021

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